**Multiple choice questions**

*From:* [*http://www.caacentre.ac.uk/dldocs/otghdout.pdf*](http://www.caacentre.ac.uk/dldocs/otghdout.pdf)

**Parts of a multiple choice question:**

A traditional multiple choice question (or item) is one in which a student chooses one answer from

a number of choices supplied. A multiple choice question consists of

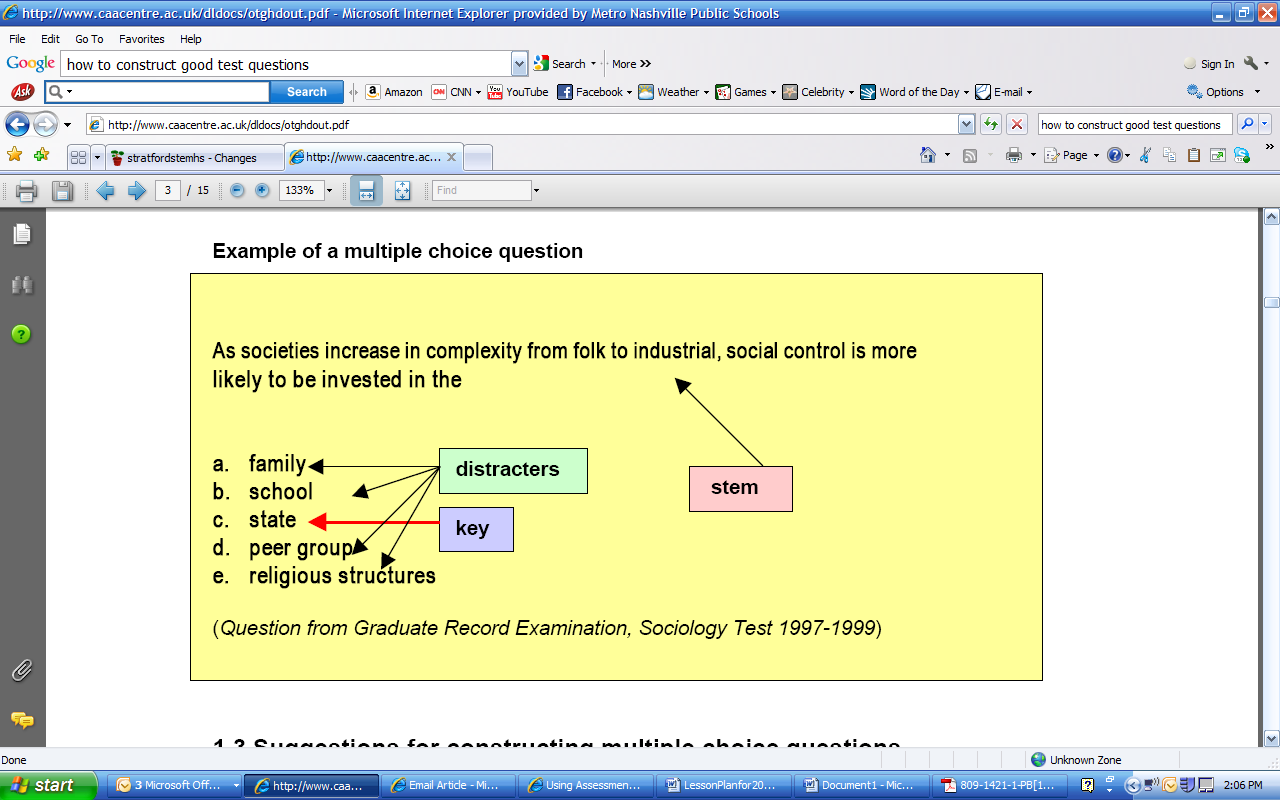
· a **stem** - the text of the question

· **options** - the choices provided after the stem

· the **key**: the correct answer in the list of options

· **distracters**: the incorrect answers in the list of options

**Example of a multiple choice question**



**1.1 Suggestions for constructing multiple choice questions**

**Writing stems**

**1. Present a single, definite statement to be completed or answered by one of the several given choices**

A. Weak question: Polysaccharides

a. are made up of thousands of smaller units called monosaccharides

b. are NOT found in the aloe vera leaf

c. are created during photosynthesis

d. can be described by the chemical formula: CHHOH

B. Improved question: Polysaccharides of the plant cell wall are synthesized mainly in

a. the endoplasmic reticulum

b. the cytosol

c. the plasma membrane

d. the Golgi complex

e. amyloplasts

In the top example, there is no sense from the stem what the question is asking. The second example more clearly identifies the question and offers the student a set of homogeneous choices.

*Improved question from GRE - Biochemistry, cell and molecular biology test 1997-1999*

**2. Avoid unnecessary and irrelevant material**

A. Weak question: Paul Muldoon, an Irish postmodern poet who uses experimental

and playful language, uses which poetic genre in "Why Brownlee Left"?

a. sonnet

b. elegy

c. narrative poem

d. dramatic monologue

e. haiku

B. Improved question: Paul Muldoon uses which poetic genre in "Why Brownlee Left"?

a. sonnet

b. elegy

c. narrative poem

d. dramatic monologue

e. haiku

The top example contains material irrelevant to the question.

**3. Use clear, straightforward language in the stem of the item. Questions that are constructed using complex wording may become a test of reading comprehension rather than an assessment of whether the student knows the subject matter.**

Weak example: As the level of fertility approaches its nadir, what is the most likely ramification for the citizenry of a developing nation?

a. a decrease in the labor force participation rate of women

b. a dispersing effect on population concentration

c. a downward trend in the youth dependency ratio

d. a broader base in the population pyramid

e. an increased infant mortality rate

Improved question: A major deline in fertility in a developing nation is likely to produce

a. a decrease in the labour forces participation rate of women

b. a dispersing effect on population concentration

c. a downward trend in the youth dependency ratio

d. a broader base in the population pyramid

e. an increased infant mortality rate

***Improved question from GRE - Sociology Test 1997-1999***

**4. Use negatives sparingly. If negatives must be used, capitalize, underscore embolden**

**or otherwise highlight.**

Weak question: Which of the following is not a symptom of osteoporosis?

a. decreased bone density

b. frequent bone fractures

c. raised body temperature

d. lower back pain

Improved question: Which of the following is a symptom of osteoporosis?

a. decreased bone density

b. raised body temperature

c. hair loss

d. painful joints

**5. Put as much of the question in the stem as possible, rather than duplicating material in**

**each of the options. (Gronlund 1988)**

Weak question: Theorists of pluralism have asserted which of the following?

a. The maintenance of democracy requires a large middle class.

b. The maintenance of democracy requires autonomous centers of contervailing power.

c. The maintenance of democracy requires the existence of a multiplicity of religious groups.

d. The maintenance of democracy requires a predominantly urban population.

e. The maintenance of democracy requires the separation of governmental powers.

Improved question: Theorists of pluralism have asserted that the maintenance of democracy requires

a. a large middle class

b. autonomous centers of contervailing power

c. the existence of a multiplicity of religious groups

d. a predominantly urban population

e. the separation of governmental powers

***Question from GRE Sociology test book - 1997-1999***

**Writing distracters**

**For single response MCQs, ensure that there is only one correct response.**

Which of the following texts is considered to represent the pinnacle of modernist achievement?

*a. The Waste Land*

b. *Middlemarch*

c. "Ode to a Nightingale"

*d. Ulysses*

*e. Ethan Frome*

Improved: Which of the following texts represents one of the high points of modernist achievement?

*a. The Waste Land*

*b. Middlemarch*

c. "Ode to a Nightingale"

*d. Ethan Frome*

e. "My Last Duchess"

In the top example, both options a and d could be considered to be correct.

**Use only plausible and attractive alternatives as distractors.**

Weak question: Dichotic presentation of stimuli and shadowing are often used in the study of

a. brightness constancy

b. sensory scaling

c. shadow dancing

d. cartoons

e. selection attention

Improved question: Dichotic presentation of stimuli and shadowing are often used in the study of

a. brightness constancy

b. sensory scaling

c. illusions

d. depth perception

e. selection attention

In the top example, c and d are not serious distracters.

**3. Avoid giving clues to the correct answer**.

A. Poor question: A fertile area in the desert in which the water table reaches the ground surface is called an

a. mirage

b. oasis

c. water hole

d. polder

B. Improved question: A fertile area in the desert in which the water table reaches the ground surface is called a/an

a. mirage

b. oasis

c. water hole

d. polder

Example A uses the article “an” which identifies choice b as the correct response.

Ending the stem with “a/an” improves the question.

**4. Since we are using “All of the above” and “None of the above”, make sure that they appear as correct answers some of the time. (We need to break the habit of our kids automatically selecting this as an option when it is given versus having them think critically about this option.)**

It is tempting to resort to these alternatives but their use can be flawed. To begin with, they often appear as an alternative that is not the correct response. If you do use them, be sure that they constitute the correct answer part of the time. An “all of the above” alternative could be exploited by a test-wise students who will recognize it as the correct choice by identifying only two correct alternatives.

Similarly, a student who can identify one wrong alternative can then also rule this response out. Clearly, the student’s chance of guessing the correct answer improves as they employ these techniques. Although a similar process of elimination is not possible with “none of the above”, it is the case that when this option is used as the correct answer, the question is only testing the students’ ability to rule out wrong answers, and this does not guarantee that they know the correct one. (Gronlund 1988)

5. **Distracters based on common student errors or misconceptions are very effective.**

One technique for compiling distracters is to ask students to respond to open-ended short answer questions, perhaps as formative assessments. Identify which incorrect responses appear most frequently and use them as distracters for a multiple choice version of the question.

**6. Correct statements that do not answer the question are often strong distracters.**

7. **Avoid using ALWAYS and NEVER in the stem as test wise students are likely to rule such universal statements out of consideration**.

**8. Do not create distracters that are so close to the correct answer that they may confuse students who really know the answer to the question. "Distracters should differ from the key in a substantial way, not just in some minor nuance of phrasing or emphasis."**

**(Isaacs 1994)**

**9. Provide a sufficient number of distracters.**

You will probably choose to use three, four or five alternatives in a multiple choice question.

Until recently, it was thought that three or four distracters were necessary for the item to be suitably difficult. However a 1987 study by Owen and Freeman suggests that three choices are sufficient (Brown 1997). Clearly the higher the number of distracters, the less likely it is for the correct answer to be chosen through guessing (providing all alternatives are of equal difficulty.)